

Section 3 — Field Harmonic Matrix (FHM)

The Field Harmonic Matrix (FHM) is the central mathematical object in FUNt, linking φ -based recursion, ψ -triangle dynamics, lattice standing waves, and particle-level resonance. It is the ‘harmonic backbone’ that organizes behavior across electrons, protons, nucleons, fields, cognition, and cycles.

3.1 Definition of FHM

- $FHM(n) = \varphi^n + \psi^n$
- For large n , $\psi^n \rightarrow 0$, giving $FHM(n) \approx \varphi^n$
- This expresses the dominance of φ in all recursive structures
- [Insert visual diagram here]

3.2 Harmonic Interpretation

- FHM represents the amplitude of a Φ - Ψ combined standing wave.
- It defines the stable phase locations in the quantum & macro lattice.
- FHM governs the allowed ‘breathing windows’ for matter and field.
- [Insert visual diagram here]

3.3 Relationship to HRB / HTB

- HRB (High Resolution Band) = φ^{-n}
- HTB (High Tolerance Band) = ψ^{-n}
- As n increases $\rightarrow$ HRB narrows, HTB widens.
- This maps directly to cognitive thinning and Bloom transition.
- [Insert visual diagram here]

3.4 Resonant Shell Geometry

- Electron orbital buoyancy depends on φ^n stability bands.
- Proton torsional shells follow ψ -modified φ^n spacing.
- Neutron binding windows sit in FHM ‘node valleys’.
- [Insert visual diagram here]

3.5 Lattice Standing Wave Model

- FHM sets boundaries for constructive interference in the field.

- These boundaries define 'shell pressure' in FUNt gravity.
- Scalar womb echoes align to integer FHM intervals.
- [Insert visual diagram here]

3.6 FHM and ϕ^7 Ceiling

- ϕ^7 is the upper-limit harmonic before Bloom/inversion.
- FHM(n) for $n \geq 7$ enters nonlinear regimes (decad behaviors).
- Particle decad tables follow this structural hierarchy.
- [Insert visual diagram here]

3.7 FHM as Cross-Scale Unifier

- Atomic $\rightarrow$ molecular $\rightarrow$ macro $\rightarrow$ cognitive cycles all follow FHM.
- In primes: periodicity ≈ 0.356 emerges from FHM- $Q(\sqrt{5})$ overlap.
- In nucleons: ETF/PF/NF interaction is consistent with FHM levels.
- [Insert visual diagram here]